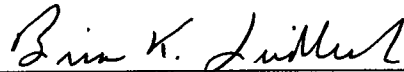


PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) 050103-0574	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on _____ Signature _____ Typed or Printed Name _____		Application Number 10/776,223	Filed February 12, 2004
		First Named Inventor Xiaoding MA, et al.	
		Art Unit 1795	Examiner McDonald, Rodney Glenn
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p>			
I am the <input type="checkbox"/> applicant/inventor. <input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96) <input type="checkbox"/> attorney or agent of record. Registration number _____ <input checked="" type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 51,321		<div style="text-align: center;">  Signature </div> <div style="text-align: center;"> Brian K. Seidleck Typed or printed name </div> <div style="text-align: center;"> 202-756-8339 Telephone number </div> <div style="text-align: center;"> December 23, 2008 Date </div>	
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.			
<input checked="" type="checkbox"/> *Total of <u>1</u> forms are submitted.			

REMARKS

Claims 1, 2, 6-8, 11-14, 26, 28, 29, 31, 32, 35, 37-40, and 42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,067,206 to Uwazumi et al. (“Uwazumi”) in view of U.S. Patent No. 4,888,211 to Oka et al. (“Oka”).

The Office Action asserts that Uwazumi teaches a method of manufacturing granular magnetic recording media. The Examiner avers that Uwazumi teaches providing a non-magnetic substrate including a substrate and forming a layer stack on the surface of the substrate, where the layer stack includes an outermost granular magnetic recording layer. The Examiner contends that Uwazumi teaches a protective overcoat layer on the magnetic layer.

The Office Action acknowledges that Uwazumi does not discuss a magnetic layer having a nano-scale rough and porous surface. The Office Action admits that Uwazumi does not discuss treating the exposed surface of the granular magnetic recording layer. The Office Action acknowledges that Uwazumi does not discuss etching the surface of the granular magnetic recording layer or sputter etching. The Office Action relies on Oka in an attempt to cure the admitted deficiencies of Uwazumi.

The Office Action asserts that Oka teaches treating the exposed nano-rough and porous surface of the granular recording layer to provide at least an increased microstructural homogeneity. The Examiner contends that treating can include sputter etching the surface of the magnetic layer with inert gas ions of Argon.

In the Response to Arguments section, the Examiner concludes that Oka would not teach away from sputtering on smaller scales. The Examiner concludes that while Oka teaches heating when depositing, the Applicants’ claims do not preclude heating during deposition.

Contrary to the Examiner’s assertion, Oka actually teaches in col. 24, lines 48-53:

Examples 10 through 14 according to the present invention were advantageous over Comparative Example 12 according to the magnetron sputtering method in that the speed of drawn the substrate was very high and a speed ensuring practical industrial production could be obtained (emphasis added).

Oka concludes that the sputter depositing a cobalt type alloy film is a conventional method (col. 1, lines 25-27 and 35-36). Oka states that the sputtering method is **not suitable** for industrial production because the film-forming speed is low and the manufacturing cost is increased (col. 1, lines 27-30 and col. 2, lines 4-20). Oka teaches that the sputtering method requires heating the substrate to a temperature of about 150° to 300°C during the formation of the film in order to

improve the magnetic characteristics in the vertical direction of a Co-Cr alloy (col. 1, lines 35-39). Oka teaches other deposition techniques and adopts electron beam vacuum deposition **over** sputter deposition (col. 7, lines 27-39). Thus, Oka *teaches away* from the claimed sputter deposition of an outermost granular magnetic recording layer. Therefore, one of skill in this art would **not** have been motivated to sputter etch the outermost granular magnetic recording layer after forming this layer by sputter deposition.

The Examiner has not explained how Oka can *teach away* from sputter deposition for industrial production, yet somehow establishes a relationship between sputter depositing on “smaller scales,” let alone the claimed sputter deposition of the outermost granular magnetic recording layer. Oka clearly does not disclose sputter depositing the outermost granular magnetic recording layer.

In the Inventive Examples of Oka, the cobalt was melted and evaporated by *electron beam evaporation* and a magnetic layer was continuously formed on the film. Oka states in col. 22, lines 28-43:

[t]he product obtained in *Comparative Example 7 was of almost no practical use* as a vertical magnetic recording medium for high-density recording.

As shown in Table 4, *in the products of Examples 7 through 9 according to the present invention, the diameter of the columnar structures was appropriate and the ratio of cobalt to cobalt monoxide in the columnar structures was appropriate*. Furthermore, since there were voids present among the columnar structures, *the magnetic characteristics in the vertical direction were excellent and no cracks were present on the surface of the magnetic layer*. Accordingly, *these products were very excellent as the vertical magnetic recording medium for high-density recording (emphasis added)*.

In Comparative Example 12, a vertical magnetic layer composed mainly of iron oxide was formed by magnetron sputtering. Oka states in col. 24, lines 62-68:

In Comparative Examples, columnar structures were observed but they were very indefinite. The number of voids was very small, and the columnar structures were densely aggregated. Moreover, the height of the fine projections formed on the top ends of the columnar structures was small and the magnetic layer was relatively flat.

Oka explicitly teaches away from sputter deposition in the Comparative Examples. The Examiner fails to point to any specific information in Oka that discloses sputter depositing, let alone lead one of ordinary skill in the art to modify the electron beam vacuum deposition method of Oka. Thus, Oka cannot be relied upon to cure the admitted deficiencies of Uwazumi.

As, Uwazumi and Oka do not disclose the same process of manufacturing granular magnetic recording media as disclosed by the present inventors, Uwazumi and Oka do not suggest the method for manufacturing granular magnetic recording media, as required by claims 1 and 32.

In the Response to Arguments section, the Examiner contends that Uwazumi teaches nanoscale roughness because Uwazumi purportedly teaches the same deposition process and conditions as the Applicants. The Examiner considers the sputter etching of Oka that enhances the fineness of the projections on the substrate to be the equivalent to reducing the roughness of the film.

To the extent that the Examiner is relying on official notice, Applicants note that as explained in MPEP § 2144.03, official notice should only be taken of readily provable facts. Moreover, It is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which a rejection was based. *In re Zurko*, 258 F.3d 1379, 1385-6, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001); *In re Ahlert*, 424 F.2d 1088, 1091-2, 165 USPQ 418, 420-1 (CCPA 1970). The cited prior art does not recognize the advantage of obtaining the nano-scale roughness of the outermost granular magnetic recording layer to be ***less than*** 2.0 Å, as required by claim 32. The present inventors, however, have discovered that the decrease in surface nano-scale roughness of the outermost granular magnetic recording layer is an effect of sputter etching (*see, e.g.*, Figs. 3A, 3B, 4, 5, 6A, 6B, 7A, and 7B; and Paras. [0053], [0069], and [0072]). This unexpected result is not suggested or recognized by the cited references. The Examiner has not addressed the evidence of unexpected results. Further, the Examiner has not established that the cited prior art suggests an outermost granular magnetic recording layer having the specifically claimed range of nano-scale roughness ***less than*** 2.0 Å. To the extent that the Examiner is relying on personal knowledge, regarding the claimed limitation, an Examiner's affidavit should be made of record to support the Examiner's conclusion. See 37 C.F.R. 1.104(d)(2).

Neither Uwazumi nor Oka, individually or combined, disclose or infer, "...forming a layer stack on said surface of said substrate, said layer stack including an outermost granular magnetic recording layer with an exposed nano-scale rough and porous surface, said outermost granular magnetic recording layer is formed by sputter deposition in an atmosphere with at least one reactive gas comprising oxygen, nitrogen, and/or carbon atoms; (c) sputter etching said surface of said granular magnetic recording layer with ions of an inert gas; and (d) forming a protective overcoat layer on the treated surface of said granular magnetic recording layer, wherein the nano-scale roughness of the outermost granular magnetic recording layer is less than 2.0 Å," as recited by claim 32.

Claims 3, 30, and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Uwazumi in view of Oka, and further in view of U.S. Patent No. 6,432,563 to Zou et al. (“Zou”).

The Office Action relies on Zou in an attempt to cure the admitted deficiencies of Uwazumi and Oka. The Office Action asserts that Zou teaches a granular magnetic layer that is longitudinal for use in a magnetic medium.

The combination of Uwazumi, Oka, and Zou does not teach or infer the claimed method because Zou does not cure the deficiencies of Uwazumi and Oka. Although not relied upon to do so, Zou is *silent* regarding etching, specifically sputter etching the outermost granular magnetic recording layer, as required by independent claims 1, 26, and 32.

Claims 9, 10, 33, and 34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Uwazumi in view of Oka, and further in view of U.S. Patent No. 7,147,943 to Ono et al. (“Ono”).

The Office Action acknowledges that Uwazumi and Oka do not discuss forming a diamond-like carbon (DLC) protective layer. The Office Action relies on Ono in an attempt to cure the admitted deficiencies of Uwazumi and Oka. The Office Action asserts that Ono teaches forming a DLC protecting layer for a magnetic layer by ion beam deposition.

The combination of Uwazumi, Oka, and Ono does not teach or infer the claimed method because Ono does not cure the deficiencies of Uwazumi and Oka. Although not relied upon to do so, Ono is *silent* regarding etching, specifically sputter etching the outermost granular magnetic recording layer, as required by independent claims 1, 26, and 32. Dependent claims are allowable for at least for the same reasons as independent claims 1, 26, and 3, and further distinguish the claimed method.

Withdrawal of the foregoing rejections is respectfully requested.

Application No.: 10/776,223

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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